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10/578,740	05/09/2006	Hans Kallio	868A.0033.U1(US)	3675
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EXAMINER CLIFTON, JESSICA L				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,740

Applicant(s)

KALLIO, HANS

Examiner

JESSICA CLIFTON

Art Unit

4144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☒ Claim(s) 11 and 12 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 11/15/2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-18 have been examined and are pending.

Claim Objections

2. Claims 11 and 12 are objected to because of the following informalities: Claims 11 and 12 are device claims that claim dependency on claim 9, which is a method claim. Examiner will examine claims 11 and 12 with dependency on claim 10, all of which are device claims. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 16, 17, and 18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. As per claim 16 and 17, “**a computer program...**”, a program which is not tangibly embodied in a computer readable storage medium is considered non-statutory subject matter. As per claim 17, “**stored on a carrier...**”, a signal which carries code is considered non-statutory subject matter. As per claim 18, “**an information structure...**”, a structure which is not tangibly embodied in a computer readable storage medium is considered non-statutory subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by
Tourunen et al. (US Pub. No. 2001/0043579).

As per claim 13, Tourunen discloses **a device that comprises communication means for packet data based wireless data transmission** (Abstract, discloses a telecommunication system for data packet transmission), **which communication means utilise a first protocol layer (i.e. PDCP layer) that adapts data packets according to a second, higher protocol layer (i.e. network layer) to a form suitable for wireless (i.e. radio) data transmission** (Paragraph [0031], discloses a PDCP entity receiving data packets from the network layer and modifies these packets into Protocol Data Units (PDU)), **said communication means comprising reception means for receiving information used to identify the packets on said first protocol layer, configured to receive said information used to identify the packets in at least two alternative forms** (Paragraph [0026] and Figure 4, disclose receiving 16-bit PDCP-PDU numbers and converting these to 8-bit N-PDU numbers).

As per claim 14, the combination of Tourunen teaches the **device according to claim 13**. Tourunen further discloses **said device is a mobile station, a laptop computer, a handheld computer, a smart phone, a digital camera, or some network element of a wireless data transmission network or a Radio Network Controller (RNC) element** (Paragraph [0022], discloses RNC in connection with mobiles stations).

As per claim 15, Tourunen discloses **a data transmission system that comprises at least one network element (i.e. RNC) and at least one piece of terminal equipment (i.e. mobile station), which network element and terminal equipment are connected to each other over a wireless transmission link (i.e. radio)** (Paragraph [0022], discloses RNC in connection with mobiles stations in a radio network UTRAN (UMTS)) **and comprise means for transmitting information over said wireless transmission link in the form of data packets** (Paragraph [0002], discloses packet switched data transmission between UMTS and GPRS);

means for utilising a first protocol layer (i.e. PDCP layer), which first protocol layer adapts data packets according to a second, higher protocol layer (network layer) to a form suitable for wireless (i.e. radio) data transmission (Paragraph [0031], discloses a PDCP entity receiving data packets from the network layer and modifies these packets into Protocol Data Units (PDU). The PDCP entity compresses the header field and transmits this PDU data along with the identification data of the radio link data to the RLC layer);

means for transmitting information used to identify the packets on said first protocol layer, wherein at least either one of said network element and terminal equipment (i.e. mobile station) comprises means for conditionally choosing a size for said information used to identify the packets between at least two alternatives (Paragraph [0041], disclose mobile stations capable of receiving 8-bit or 16-bit numbering. The mobile station determines the numbering size based on configuration commands).

As per claim 16 and 17, Tourunen discloses **a computer program to be performed in terminal equipment** (i.e. mobile station) (Paragraph [0022], discloses RNC in connection with mobiles stations in a radio network UTRAN (UMTS)) **that comprises communication means for packet data based, wireless data transmission** (Paragraph [0002], discloses packet switched data transmission between UMTS and GPRS), **which communication means utilise a first protocol layer (i.e. PDCP layer) that adapts data packets according to a second, higher protocol layer (i.e. network layer) to a form suitable for wireless (i.e. radio) data transmission and attach information used to identify the packets to the data packets to be transmitted on said first protocol layer** (Paragraph [0031], discloses a PDCP entity receiving data packets from the network layer and modifies these packets into Protocol Data Units (PDU)), **said computer program comprising a program code for conditionally choosing a size for said information used to identify the packets between at least two alternatives** (Paragraph [0041], disclose mobile stations capable

of receiving 8-bit or 16-bit numbering. The mobile station determines the numbering size based on configuration commands).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourunen et al. (US Pub. No. 2001/0043579) and further in view of Krishnarajah et al. (US Pub. No. 2002/0191556).

As per claim 1, Tourunen discloses **a data transmission method which comprises transmitting data over a wireless transmission link in the form of data packets** (Abstract, discloses a data packet transmission method in a packet-switched telecommunication system) **and which method comprises utilising a first protocol layer (i.e. PDCP layer) which adapts data packets according to a second, higher protocol layer (i.e. network layer) to a form suitable for wireless (i.e. radio) data transmission; transferring, on said first protocol layer, information used to identify the packets** (Paragraph [0004], discloses the each data packet of the PDCP layer consists of a data packet number. Paragraph [0031], discloses a PDCP entity receiving data packets from the network layer and modifies these packets into Protocol Data Units (PDU). The PDCP entity compresses the header field and transmits this PDU data to the RLC layer. Note that this is process is shown in the applicants' disclosure, paragraph [0051]).

Tourunen does not disclose **conditionally choosing a size for said information used to identify the packets between at least two alternatives.**

However, Krishnarajah, in an analogous art, discloses **conditionally choosing a size for said information** (i.e. sequence number) **used to identify the packets between at least two alternatives** (Paragraph [0083], Table 4 illustrates the maximum PDCP serial number window size integer with value choices of 255 or 65536).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Tourunen to include **conditionally choosing a size for said information used to identify the packets between at least two alternatives**, as taught in Krishnarajah for the purpose of acknowledging received data packets.

As per claim 2, the combination of Tourunen-Krishnarajah teaches a **data transmission method according to claim 1.**

Krishnarajah discloses **finding out a maximum number of data packets related to one data transmission connection to be transmitted on said first protocol layer over said wireless transmission link at the same time** (The maximum number of data packets on first protocol layer is the maximum PDCP serial number window size. Paragraph [0083], Table 4 illustrates the maximum PDCP serial number window size as information element. Paragraph [0050], discloses that messages contain layers of information elements); **and performing said choice of**

size on the basis of said maximum number (Paragraph [0083], Table 4 illustrates the maximum PDCP serial number window size integer with value choices of 255 or 65536).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Tourunen-Krishnarajah to include **finding out a maximum number of data packets related to one data transmission connection to be transmitted on said first protocol layer over said wireless transmission link at the same time and performing said choice of size on the basis of said maximum number**, as taught in Krishnarajah for the purpose of acknowledging received data packets.

As per claim 3, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**. Tourunen further discloses **performing said choice in such a way that the size of the information is chosen to be as small as possible** (Paragraph [0033], discloses restricting the transmitting window by requiring an 8-bit N-PDU number. Paragraph [0028], discloses that N-PDU numbers identify data packets).

As per claim 4, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**.

Tourunen further teaches **using a header structure related to the chosen size on said first protocol layer (i.e. PDCP layer) for transferring the information used**

to identify the packets (i.e. N-PDU data) (Paragraph [0031] and Figure 5, discloses data transmission including header compression in accordance with the PDCP entity which uses N-PDU data illustrated in Figure 5. Paragraph [0028], discloses that N-PDU numbers identify data packets)

As per claim 5, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**. Tourunen further teaches **wherein said second protocol layer is a network layer protocol** (i.e. UDP) **of the Open System Interconnection (OSI) model** (GSM protocol follows the layered OSI model. Paragraph [0023], discloses conventional GSM protocol. Figure 3b, illustrates the GSM protocol architecture with UDP as the second layer).

As per claim 6, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**. Tourunen further teaches **said first protocol layer is a Packet Data Convergence Protocol (PDCP) layer** GSM protocol follows the layered OSI model. Paragraph [0023], discloses conventional GSM protocol. Figure 3b, illustrates the GSM protocol architecture with PDCP as the first layer).

As per claim 7, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**. Tourunen further teaches **the information used to identify the packets is a sequence number** (i.e. N-PDU number) (Paragraph [0028], discloses that N-PDU numbers identify data packets).

As per claim 8, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**. Tourunen further teaches **at least two sizes of the information used to identify the packets are 8 bits and 16 bits** (Paragraph [0004], discloses that PDCP-PDU numbers to identify a packet. Paragraph [0003], discloses that N-PDU numbers identify a packets. Paragraph [0005], discloses using either PDCP-PDU numbers of 16-bit size or N-PDU numbers of 8-bit size).

As per claim 9, the combination of Tourunen-Krishnarajah teaches **a data transmission method according to claim 1**. Tourunen further teaches **choosing 8 bits for the size of the sequence number when the value of said sequence number varies in the range 0-255, and choosing 16 bits for the size of the sequence number when the value of said sequence number varies in the range 0-65535** (Paragraph [0034], discloses a formula where the maximum number of data packets is restricted based on the data packet numbers (n). The first data packet received is given the value of 0. The max number of data packets is 255 when $n=8$. Using this same formula, the max number of data packets is 65535 when $n=16$).

As per claim 10, Tourunen discloses **a device that comprises communication means for packet data based wireless data transmission** (Abstract, discloses a telecommunication system for data packet transmission), **which communication means utilise a first protocol layer (i.e. PDCP layer) that adapts data packets**

according to a second, higher protocol layer (i.e. network layer) to a form suitable for wireless (i.e. radio) data transmission, said communication means comprising attachment means for attaching information used to identify the packets to the data packets to be transmitted on said first protocol layer, (Paragraph [0031], discloses a PDCP entity receiving data packets from the network layer and modifies these packets into Protocol Data Units (PDU). The PDCP entity compresses the header field and transmits this PDU data along with the identification data of the radio link data to the RLC layer) and

Tourunen does not disclose **choosing means for conditionally choosing a size for said information used to identify the packets between at least two alternatives.**

However, Krishnarajah, in an analogous art, discloses **choosing means for conditionally choosing a size for said information (i.e. sequence number) used to identify the packets between at least two alternatives** (Paragraph [0083], Table 4 illustrates the maximum PDCP serial number window size integer with value choices of 255 or 65536).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Tourunen to include **conditionally choosing a size for said information used to identify the packets between at least two alternatives**, as taught in Krishnarajah for the purpose of acknowledging received data packets.

As per claim 11, the combination of Tourunen-Krishnarajah teaches **a device according to claim 10**. Krishnarajah further teaches **a maximum number of data packets related to one data transmission connection to be transmitted on said first protocol layer (i.e. PDCP layer) over said wireless transmission link (i.e. radio network) at the same time is found out** (The maximum number of data packets on first protocol layer is the maximum PDCP serial number window size. Paragraph [0002], disclose a radio network. Paragraph [0083], Table 4 illustrates the maximum PDCP serial number window size as information element. Paragraph [0050], discloses that messages contain layers of information elements); **and said choice of size is performed on the basis of said maximum number** (Paragraph [0083], Table 4 illustrates the maximum PDCP serial number window size integer with value choices of 255 or 65536).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Tourunen-Krishnarajah to include **a maximum number of data packets related to one data transmission connection to be transmitted on said first protocol layer over said wireless transmission link at the same time is found out and said choice of size is performed on the basis of said maximum number**, as taught in Krishnarajah for the purpose of acknowledging received data packets.

As per claim 12, the combination of Tourunen-Krishnarajah teaches the **device according to claim 10**. Tourunen further discloses **said device is a mobile station, a**

laptop computer, a handheld computer, a smart phone, a digital camera, or some network element of a wireless data transmission network or a Radio Network Controller (RNC) element (Paragraph [0022], discloses RNC in connection with mobiles stations.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tourunen et al. (US Pub. No. 2001/0043579) and further in view of Miyazaki et al. (US Pub. No. 2004/0136377).

As per claim 18, Tourunen discloses **an information structure for transferring information used to identify packets over a wireless (i.e. radio) transmission link on a first protocol layer (i.e. PDCP layer) that adapts data packets according to a second, higher protocol layer (i.e. network layer) to a form suitable for wireless (i.e. radio) data transmission said information structure, comprising a header field and a data field, according to the first protocol layer for said data packet according to the second protocol layer** (Paragraph [0031], discloses a PDCP entity receiving data packets from the network layer and modifies these packets into Protocol Data Units (PDU). The PDCP entity compresses the header field and transmits this PDCP-PDU data along with the identification data of the radio link data to the RLC layer).

Tourunen further discloses **an 8 bit field for said information used to identify the packets** (Paragraph [0003], discloses that an 8-bit N-PDU number is associated with data packets).

Tourunen does not disclose **wherein said header field comprises said information used to identify the packets.**

However, Miyazaki, in an analogous art, discloses **wherein said header field comprises said information used to identify the packets** (Paragraph [0262], discloses that the sequence number is included in the header).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the structure of Tourunen to include **wherein said header field comprises said information used to identify the packets**, as taught in Miyazaki for the purpose of acknowledging received data packets.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Yi et al. (US Patent Publication 2003/0007490) discloses a packet data service in radio communication system. Knisely et al. (US Patent 6,317,430) discloses ARQ protocol support for variable size transmission data unit sizes using a hierarchically structured sequence number approach. Wu (US Patent Publication 2004/0151154) discloses a data transmission confirmation in a wireless communication system. Sarkkinen et al. (US Patent Publication 2004/0042491) discloses a synchronization of data packet numbers in packet-switched data transmissions. Suumaki et al. (US Patent Publication 2001/0007137) discloses a method for making data transmission more effective and a data transmission protocol. Yi et al. (US Patent Publication 2004/0125793) discloses a bi-directional packet data

transmission system and method. Wu (US Patent Publication 2003/0210714) discloses a method for avoiding loss of PDCP PDUS in a wireless communications system. Tourunen et al. (US Patent Publication 2001/0030965) discloses data packet numbering in packet-switched data transmission.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA CLIFTON whose telephone number is (571)270-7156. The examiner can normally be reached on Monday-Thursday, 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi Arani can be reached on (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. C./

Art Unit: 4144

Examiner, Art Unit 4144

/Taghi T. Arani/

Supervisory Patent Examiner, Art Unit 4144